# Guppy Care

By Lyn Hutchins

## WATER QUALITY & AMMONIA

Guppies do quite well in a temperature range of 68 to 80 degrees E However, 72 degrees seems to be best for good health. Guppies will survive in water as low as 60 degrees E If the ammonia is very severe, you may see red streaks and spots on the fins and tail, and even black marks on the tips of the fins and tail which are ammonia burns.

Some of your fish may die immediately, but even after you take care of the problem, damage to internal organs may kill some fish weeks later. Pregnant females, and small babies are particularly vulnerable Fish exposed to ammonia are more likely to become infected by various bacterial, fungal, and parasitic diseases for weeks afterwards. A high ph level can make ammonia poisoning even worse.

There are basically three ways to remove ammonia from a tank. The first is by large water changes, but is not recommended unless you have a serious emergency. Large water changes will change the chemical balance in the tank, the ph level, and can also change the water temperature even if you are very careful. Rapid changes in water conditions can put your fish into shock and kill them, and when your fish are already stressed from ammonia you are almost sure to lose some. If you have no choice and must use this method, be sure that there is no chlorine in the water. For those on a city water system you will need to purchase something to remove the chlorine, or chloramines. Chlorine is as hard on fish as ammonia, and when the two chemicals mix you will quickly realize that your fish would have been better off without the water change.

Well water can contain harmful gases, but in an ammonia emergency you don't have time to remove those gases and the ammonia is far more harmful. The second method of removing ammonia is to purchase products that absorb ammonia. Be aware that the use of salt in the tank renders most ammonia absorbing products less effective. The up side is that they work fast, and it's better for use in an emergency as you do not risk shock to the fish. Usually, it's a good idea to keep one of these products on hand, just in case of an emergency. Do not depend on ammonia absorbing products to regularly keep your tank free of ammonia. By the time you realize the product has stopped working, it is too late and your ammonia levels can be dangerous. Also, ammonia absorbing products remove minerals from the water that are important to fish health.

The third method is the bio-filter. Biofilters vary greatly in construction, but what they all have in common is that they make use of bacteria to remove the ammonia from the water. There are a few disadvantages to using a bio-filter. The first is that they do take a few weeks to become fully operational, so you may have some ammonia problems at first. Fortunately, most pet stores carry bottled bacteria that you can use to "seed" your filter, and this speeds up the process a lot.

Also, starting your tank with only a few fish at first can prevent this problem. The second problem is that your fish will be exposed to other dangerous chemicals, as a result of the bacterial breakdown process of the ammonia. Fortunately, those other chemicals are not as dangerous as ammonia, and are easily taken care of as you will see later. The third problem is that the bacteria uses oxygen to process the ammonia, however an air pump, or splash discharge, often adds more oxygen than the bacteria uses up, so this may not really be a problem unless your pump breaks down or you don't keep your filter clean. Another concern is that should your fish become ill, many antibiotics will kill your bio-filter. The good news is that ammonia is often the reason fish become sick in the first place, so with a well established filter you may never have to worry about antibiotics. The major advantage of bio-filters, is that once the bacteria is established, you can pretty much count on it to keep your tank free of ammonia for as long as you keep your tank.

## NITRATES

The bacteria in the bio-filter use oxygen to break ammonia down into nitrites. As nitrites reduce the oxygen carrying ability of the blood in fish, the fish will begin to breathe rapidly in the corners of the tank usually near the bottom. The fish will swim slower than usual and may even sit on the bottom. Excessive, long term exposure can kill, though this doesn't happen too often. A second group of bacteria in your bio-filter use oxygen to break down nitrites into nitrates, but these bacteria take longer to establish than the ones that break down ammonia. Generally, the only time you will see nitrite poisoning by itself is during the First few weeks a bio-filter is being established. Dead fish or plants, or excess food can also contribute to this problem, so remove them right away. Salt in the tank is a big help for fish experiencing this problem, as it can help them take up oxygen "Seeding" the filter, and starting with only a small number of fish, can prevent this problem altogether.

As you've probably already guessed nitrates that are the breakdown product of nitrites are not good for fish either. Fortunately, this is not a very toxic chemical, and only very large quantities will make fish ill. The only symptoms that I am aware of are that the fish are more susceptible to bacterial and fungal infections. Almost all bodies of water have some nitrates in it, as algae and water plants cannot grow without nitrates for nourishment. To take care of this problem make small, frequent water changes, or use live plants. Not only do

harm the fish, but it is unappealing. Partial water changes can help a little, but does not solve these problems. That is why many people choose to use a mechanical filter. A mechanical filter uses a fibrous material to remove large particles from the water, and charcoal or carbon to remove pollutants, discoloration, and odors that the bio-filter can't. In some mechanical filters you can also use an ammonia absorbing product, though I wouldn't recommend it unless you have an ammonia emergency. There are some very nice filters on the market that are a combination bio and mechanical filter. Understand that a mechanical filter is not essential. Your fish will live long lives without it. It simply makes tank maintenance a lot easier for you. If you plan to go without carbon or charcoal in a mechanical filter, be sure to make partial water changes once a week to remove pollutants.

There is also a pre-filter for the air that gets pumped into your tank, that you can make. Though I have heard that these are commercially produced, I have never seen one. These are good for removing pollutants from the air, before it gets pumped into your tank. Unfortunately, you can't prevent pollutants from entering the tank via the water surface, which is why you shouldn't locate a tank in a smoky room even with a pre-filter, unless you also keep fresh carbon in your mechanical filter and change it twice as often as recommended. The only time I ever needed these, was when we had several huge forest fires near our home. The air was filled with smoke for weeks, as fire crews desperately tried to contain the fires. The mechanical filters just couldn't keep up, and the water turned yellow. You can place it between your air-pump and your regular filter, or if you have a venturi tube on a power head the suction from the tube will pull air into the pre-filter. Normally, a pre-filter isn't worth the time to make or maintain, as water changes will also remove pollutants. At the time of the fires we had a water shortage, and the water changes necessary for my large tanks would have left me feeling guilty

## SALT

Sea salt should also be added to your tank water. I use one teaspoon per gallon when I initially set up a tank, then about once a month make a partial water change, adding the same ratio of salt to the new water. Salt increases the ability of water to carry oxygen, helps fish produce good protective slime coats, and adds minerals to the water that fish absorb through their skins. These minerals aid in bone and tissue growth. Salt also provides a hostile environment for fungi and parasites, and so helps prevent disease beyond the natural protection of a good slime coat. Generally, it's less expensive to purchase sea salt at health food stores, rather than pet shops. Although, the sea salt purchased at a pet shop will have more minerals, it isn't necessary to go to that expense. Be sure never to use table salt, iodized salt, or salt with anti-caking ingredients. Also, do not ever use more salt than recommended, as a larger quantity will chemically "burn" your fish to death. Sometimes, large quantities of salt are used for a short period of time to cure specific diseases, but never used on a regular basis.

## WATER CHANGES

Occasional water changes are necessary. Under normal circumstances, if you use carbon in your filter, once a month is more than enough. Sometimes, partial water changes are used in the treatment of illness to rid the water of disease or chemicals. Sometime a, partial water when a tank is run without an adequate mechanical filter. In this case it's usually for the sake of appearance, though sometimes it can also benefit the fish. If you can avoid it, never change more than half of the tank's water at once. If you get your water from a well, you will need to let the water sit out for a week. Well water tends to contain certain gases that can be harmful to your fish, and when it sits out those gases are released into the air. If you are on city water, you will need to purchase something to remove either chlorine, or chloramines from your water depending on the city you live in. If chlorine is the problem, you can also let the water sit out for three days, rather than purchase a chlorine neutralizing product. Chloramines will require special treatment. After you're sure the water is clear of gases, and chlorine or chloramines, you will want to add salt (usually 1 teaspoon per gallon). Make sure the water you are about to add is as close to the temperature of the fish tank as possible. Now you can remove water from the fish tank, and replace it with your fresh, treated water.

Water will also evaporate from the tank over time. You will notice that the water level isn't as high as it should be. When replacing evaporated water, treat the new water just as you would when making a partial water change, except do not add salt. Salt doesn't evaporate.

## FOOD

Guppies are omnivorous, and in nature consume quite a variety foods. If you've ever seen a humpbacked guppy, the deformity was probably caused by malnutrition rather than genes. Malnutrition also causes small litters, premature birth, and miscarriage. If you only feed one variety of food, your fish may stop reproducing altogether. Commercial fish food manufacturers do make food specifically for guppies, but even these foods seem to be incomplete. Buy a commercial food for guppies then supplement their diet with at least one of the following: brine shrimp, tubifex worms, blood worms, mosquito larva, or any other small insect or wormlike creature. Pet shops keep most of these freeze dried or frozen, and occasionally live. It doesn't hurt to also buy a standard food for tropical fish, then rotate foods, giving your fish a different type of food each feeding. Plankton, and algae based foods are also good to add to the diet. The more

my fish not only appear healthier, but my litter size has doubled. This is wonderful for those of us who don't have the time or resources to acquire the variety of foods our guppies need for complete nutrition. Of course you should still feed several types of food, but I like to think of this as nutritional insurance.

## BREEDING

As you probably know, guppies are live-bearers. This means that they do not lay eggs, but rather give birth. The females are about twice as large as the males. Females are usually a pale somewhat grayish color with perhaps a bit of bright color on the tail. Males however are generally bright colored all over, and are bred for almost any color in the spectrum. Males have longer tails than females, and instead of a normal anal fin they have what is called a gonopodium. A gonopodium is a modified, tubular anal fin used to fertilize the females.

Guppies reach sexual maturity at about six months of age, though this seems to vary with water temperature. Up until that time all babies look like females, and then in the course of about a week the ma. les will suddenly change color and the anal fin changes to a gonopodium. It is possible to sex guppies before that age. It involves putting your babies in front of a bright light and using a magnifying glass to look for what is known as the pregnancy spot that will only appear on the females. This is difficult and if you have a large litter can be very, very time consuming. Only do this if you plan on separating your male and female babies into different tanks as professional breeders do. You can also wait to separate your fish when they start to change into mature adults, as the differences become obvious a few days before the males become interested in breeding.

One breeding can produce up to five litters. Depending on the female, nutrition, and water conditions, you should expect your female to produce a new litter every four weeks. 3ome females do have a longer cycle and unless there are other symptoms of a nutritional or environmental problem, don't worry about it. One of my females produced her litters every eight weeks. Her litters were somewhat small, but the offspring were exceptionally healthy. In my experience litter sizes range from 12 to 46, and since I have been unable to acquire information about this from literature I will have to assume this is a normal range. Also, younger females tend to produce larger litters than older females. At about 18 months of age the female guppy will stop producing litters, and even males lose a lot of interest in reproduction though they will consider mating if there isn't too much effort involved. It is at this time that there is a tendency, especially in the females, to put on weight. Some guppy books say to put these older fish on a diet. However. guppies only live about two years and dieting during these last six months doesn't seem to really make much difference in lifespan, or quality of life.

If you wanted guppies for a simple tank display, I would suggest pumhasing only matched males and females. This way you will not have to concern yourself too much with breeding or getting ugly odd colored offspring. It is OK to keep adult males, females, and babies all in one tank. When the tank becomes crowded the adults will simply eat the babies. This might seem like a terrible thing to do, but think about what would happen if every baby survived and seven months later those babies had babies. When there are fewer adults in the tank more babies will survive. The only thing you will need to concern yourself with in this situation, is that you don't have more males than females. Too many males will leave the females

exhausted, and can lead to dead females. Which leaves the remaining females even more exhausted, and more deaths, until finally there are no females left. Most books are written by full time breeders who like to suggest buying several tanks. Serious breeders acquire many tanks, they have tanks for adult males, adult females, baby males, baby females, breeders, and feeders (those that they sell to feed to other species of fish), tanks for breeding and for giving birth. Most of us can't afford to buy one let alone maintain twenty or thirty tanks, in a heated basement or garage just so we can have one tank of nice looking males to impress our guests in the living room.

If you really have a strong desire to have some control over how your offspring will come out, but don't want to devote your days and nights to guppy breeding, feeding, and cleaning then let me suggest keeping two tanks. One tank to house your adult males, the other for your females and offspring. Place a breeding trap or net in the female tank, and arrange a visit for your favorite female and favorite male. Fortunately, you don't have to worry too much about inbreeding with guppies, as the species doesn't seem to have many fatal recessive genes. If you do seem to end up with a lot of defective offspring, then put your male directly into the female tank and let him visit the harem. This will give you more genetic variety. The most difficult part to this is that when your young males mature you must transfer them to the male tank immediately. This is only difficult if you don't have much time to watch your fish.

## ILLNESS

Fortunately, most illnesses can be prevented with proper tank maintenance. Trust me, a few minutes of cleaning your filter and the bottom of your tank is worth it. Also, after you have an established aquarium, you should never introduce any new fish into your tank without two weeks of quarantine in a separate container. A perfectly healthy looking fish could be harboring a serious illness. Also, all tanks have some disease organisms in {ham. When a fish is moved from one environment to another it becomes more susceptible to disease. One diseased fish in a tank leaves the other fish more susceptible. If only one or two fish are sick, move them to a quarantine container for treatment, as this will spare your other fish exposure to disease and dangerous medications. If a disease condition does

Tail and fin rot can be prevented by keeping ammonia and nitrite levels low, adding salt at regular intervals, and quarantine of new fish. Guppies are particularly susceptible to this disease, and you will first recognize it as a ragged edge on the tail fin. Healthy adult tail fins should have a fairly straight edge, though sometimes adolescents will have temporary ragged fins due to uneven growth. As the disease progresses, the other fins become ragged, and the fins develop a white (sometimes though not always, fuzzy) margin. Sometimes, the fins will also develop red bloodspots. If the disease is allowed to continue, your guppies will die. In most species of fish this disease is a combination of bacteria and fungus on the fins themselves, however guppies tend towards acquiring an internal bacterial infection which spreads to the fins. You may try the salt treatment (instructions given later), as this sometimes does the trick. If that doesn't work, an antibiotic such as tetracycline can be used. Let your pet shop help you. They will specifically need to know if you use a bio-filter as many antibiotics will kill your filter.

Camallanus is also fairly common in guppies. It's an orange or red intestinal round worm that lives on the blood and other body fluids of live-bearers. You will probably first notice the problem when you see one protruding from the anus of one of your fish. Fortunately, it's extremely easy to prevent. Don't feed your fish cyclops. Cyclops are a very small animal that guppies absolutely love to eat, but unfortunately cyclops are a carrier of camallanus. Even commercially sold cyclops are dangerous. Also, a good reason for cleaning plants, and dumping out the water that the plants came in is that cyclops will sometimes hitch a ride. I ended up with cyclops in a tank because of a plant that I didn't introduce to my tank properly. I also lost several of my best fish before I realized what was wrong. You will need something to kill parasites if you get this illness in your tank. Let your pet shop know what other species of fish you have in your tank, especially snails. The only thing more dangerous than the cure is the disease, so expect to lose fish with this. Some of your pregnant females may also miscarry, as the medication is quite hard on them.

Ich is a highly contagious disease caused by a protozoan called ichthyophthirus. Almost all tanks carry this disease, and many species of fish can contract it. Fish seem to be most likely to get this when they move to a new tank. This protozoan will remain dormant as long as your fish are stress free. The first symptom you will notice is your fish "scratching" themselves on objects in the tank. Since this is also similar to ammonia poisoning, it won't hurt to give your tank a good cleaning and remove all waste accumulating on the bottom. Ammonia is also one kind of stress that can trigger this disease. A few days after the "scratching", small white spots, about the size of a grain of salt, will appear on your fish. If you see even one spot, begin treatment, as your fish can be covered in spots in a matter of hours. These cysts will fall off the fish to the bottom, where the protozoan will multiply and begin the free swimming stage of it's life-cycle. It's during the free swimming stage that it's vulnerable to treatment. To treat your fish, bring your tank up to 80 to 85 degrees F, as ich doesn't survive easily in this temperature range, and keep it at that temperature until you are done treating your fish. Don't worry, your fish will survive this temporary temperature change. Because of the extra need for oxygen, and because a good slime coat helps the fish's natural defenses against ich, I usually double the amount of salt normally added to the tank. Now go to your pet shop. Because this disease is so common with so many species, the pet shop has many different effective medications to treat it. Be sure to continue treatment for as long as the instructions say, because you can have free swimming ich in your tank for as long as ten days without any symptoms in your fish.

Velvet (Oodinium) is another protozoan that can infect guppies. It looks like a yellowish slime, and is very difficult to detect on bright colored fish. The fish will "scratch" as in ich. Don't use the heat treatment, as velvet doesn't seem to be bothered by heat. However, go ahead and double the usual salt in your tank, just to aid the slime coat. Then buy one of the many remedies available at the pet store. As in ich, be sure to continue treatment according to instructions, because of the free swimming parasites.

Anchor worm (Lernaea cyprinacea) is really a parasitic copepod, a type of crustacean, rather than a worm. It looks like a small stick, stuck in the skin of your fish. You will need to purchase a commercial treatment, and continue treatment for four to six weeks. As in other parasite treatments, the medication is hard on the fish. Don't expect your females to give birth for awhile.

Popeye or exophthallamos is a sign of other, usually internal, illness. Fluid or gas pockets develop behind the eyes causing them to bulge. Contact your pet shop. You may need to try several different kinds of medication, before you find the cure.

Dropsy can be recognized by an extreme swelling of the belly. The swelling is so extreme that the scales will stand out from the body and the fish will have difficulty swimming. Dropsy isn't so much an illness, as a serious symptom of illness. Sometimes it is caused by an internal bacterial infection, and may possibly be cured by a food containing an antibiotic, however, don't count on it. Generally there were other symptoms of illness first, and dropsy is the final fatal symptom. sometimes dropsy is caused by high levels of ammonia or nitrates in the water. If this is the case, there is no cure, as it indicates extreme internal damage. A fish can often live for weeks with dropsy. If the illness is bacterial in nature, you will need to remove the fish to prevent a spread of infection. In general I recommend putting your fish to sleep. You can do this by placing the fish in the freezer, in a container of water from it's own tank. As the water temperature drops, the fish's metabolism slows down and it will literally fall asleep long before it freezes. This is much kinder than the slow and sometimes painful death by dropsy.

The salt treatment can be used first whenever you are unsure of the cause of illness. It's especially effective in treating fungal infections, and can sometimes help with parasitic infections. Irs also less dangerous to your fish than a lot of medications. The salt treatment takes 10 days.

Days 1 - 3: add I teaspoon salt for every gallon of water, every morning and every night. (2 teaspoons /gallon/day)

add a small amount of house plant fertilizer. Not too much though, as fertilizer is essentially ammonia, nitrites, and/or nitrates, and you don't want to harm your fish. Plants provide hiding places for baby fish, and for females who are getting too much male attention. Also, plants just plain look nice. If you don't use plants in your tank, do be sure to use a carbon filter, and make small weekly water changes.

When you acquire new plants, throw away the water that they came in and rinse the plants thoroughly under running tap water. This will help prevent snail or cyclops infestation. Unlike some larger species of fish, guppies don't eat snails or snail eggs. Therefore, snails can become a serious problem in the tank and will consume all of your plants over time. Then when your plants are dead, most of the snails starve to death and you've got a serious and disgusting clean-up problem. Cyclops carry a parasite that is fatal to guppies. Guppies will nibble on some species of plants which adds to the variety in their diet. Fortunately, they don't seem to eat enough to affect the plants.

Salt in the tank will cause your tank to be somewhat alkaline. This doesn't harm the fish, but some species of plants won't survive in a healthy guppy tank. Temperature also affects plant survival. Elodea (Anacharis) is found in most pet shops, and does extremely well as long as the water temperature doesn't go higher than 77 degrees. Banana plants won't hide babies or females, but they are an interesting plant to look at and will do well in a guppy tank. Duckweed is good for hiding babies, but this floating plant is very prolific and must be thinned to allow light into the tank.

Water milfoils are highly variable as to growing conditions. Some will thrive in a guppy tank and others will die in a few days. Water milfoils also produce more oxygen than a lot of species of plant, and are excellent for hiding babies. It's definitely worth trying what your pet shop has available. Riccia fluitans is a floating plant that I have not had the opportunity to try, but should do well in a guppy tank and provide good hiding places for babies. It's also a good oxygen producer. Also try sagittaria, hygrophila, vallisneria, ludwigia, hair grass, and parrot's feather. Don't bother buying the following plants as they will not survive if your tank is set up correctly for guppies: Laceleaf plant, aponogeton, cabomba, callitrich species, ceratophyllum demersum, ceratopteris, cryptocoryne, water moss, lobella, potomogeton densus, syngonium, and utricularia (a carnivorous plant that might also consume babies). Not all plants available can be listed. Ask your pet shop or plant dealer about which species to plant in a guppy tank. Some places know about the plants they sell and some don't, but it usually doesn't hurt to experiment. Also, be aware that some places sell plant cuttings from house plants that don't even grow underwater, even though the cuttings are displayed underwater. These plant cuttings will die in a few days to a few weeks. If you think you've seen it growing in a pot in someone's house, don't buy it.

## COMPATIBLE FISH SPECIES

Generally, most livebearers will do well with guppies, as long as the temperature range is compatible. Be aware that breeding accidents can occur with guppies and platties. Male guppies are attracted to female platties, and if there are no available female guppies, interspecies breeding can take place. The offspring are sterile and not very attractive. As long as fully grown guppy females are available, you shouldn't have a problem. Also, note that other livebearers are more particular about tank conditions, nutrition, and temperature, than the hardy little guppy.

Platties survive in a temperature range of 68 to 77 degrees. They will not breed at the extremes of this temperature range. Below 68 degrees baby platties die, and mothers miscarry. Platties are livebearers. Females can grow to be almost three inches long. The females are just as bright colored as the males. Male platties are slightly smaller and have a gonopodium instead of an anal fin. Guppies do fine in an unsalted tank, and if you forget to add salt at times they will live.

However, platties absolutely require salt in their tank. Never forget to add salt. Use the recommended amounts given earlier for guppies. Also, frequent partial water changes are recommended, even if you have full filtration.

Swordtails need the tank kept at 72 to 73 degrees. Their offspring are born at 73 degrees. They can survive outside this temperature range, but you will have very unhealthy fish and no babies. They are also livebearers. They are close relatives of the guppies and platties. Females are just as brightly colored as the males, and some grow to almost 5". The males are much smaller, have a gonopodium, and an elongated pointed tail lobe for which the species is named. They also like salt added to their water, but it isn't absolutely necessary. Be very, very careful of temperature if you make partial water changes.

Mollies do best in a 72 to 82 degree temperature, They am livebearers closely related to guppies. All mollies like salt in their tank, and some types require salt. Females are as brightly colored as the males, and can grow to almost 5". Males are smaller, and have a 9onopodium.

Sailfin mollies like temperatures from 73 to 83 degrees. They must have salt added to their tank. They are also larger than the previously mentioned livebearers, some growing to as much as 6" long. Males have a larger dorsal fin (fin on the back), and have a gonopodium. Sailfin mollies can also become aggressive towards smaller fish if the tank isn't large enough. Males tend to fight with each other.

Plated catfish (corydoras) do well in a temperature range of 75 to 77 degrees. Many kinds do well in temperatures as low as 59 degrees. Ask your pet shop which kind can live in your tank. The female of these species holds her eggs next to her body in her pelvic fins. They will eat plants, algae, and dead fish, and can grow to almost 5 inches, with females being slightly larger than males. Likes to have others of its own kind with it. They are a very good species to keep with guppies - gentle, easy going fish.

Back to the Membership Library

## Filtration